

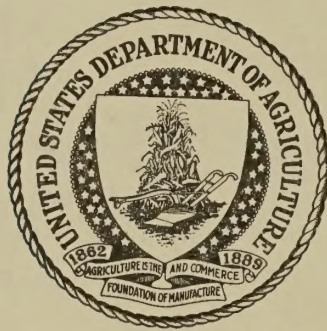
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SURVEY AND REPORT
OF
PRESENT AND FUTURE LOAD REQUIREMENTS
OF
RURAL ELECTRIC COOPERATIVES

✓
NORTHERN IDAHO
RURAL ELECTRICAL REHABILITATION
ASSOCIATION, INC.
(IDAHO 4 BONNER)
SANDPOINT, IDAHO

✓
APPLICATIONS AND LOANS DIVISION
RURAL ELECTRIFICATION ADMINISTRATION
WASHINGTON, D. C.
March 1946

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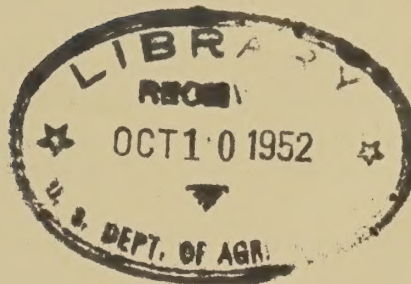


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MAPS

SURVEY AND REPORT
OF
PRESENT AND FUTURE LOAD REQUIREMENTS
OF
RURAL ELECTRIC COOPERATIVES 1/

PURPOSE OF REPORT

The purpose of this report is to investigate and tabulate, insofar as possible at this time, the existing electric loads now served by the Northern Idaho Rural Electrical Association, Inc., together with the prospective electrical loads which may reasonably be expected to develop and be served by this cooperative during the next two, five and ten years.

The immediate purpose of the report is to ascertain present and probable future power requirements of the cooperative and resulting load data for the consideration by the Bonneville Power Administration in its studies of the feasibility of extending transmission lines into the area to provide adequate low cost power to the present and future members of the cooperative as well as to other loads independent of this study.

This report does not purport to establish the feasibility of the cooperative serving all loads tabulated in the survey nor does it intend to show by inference that funds are or will be earmarked by the Rural Electrification Administration for service to such loads. Each application for REA loan funds will, as in the past, be considered on its own merits.

Other purposes of the report are (1) to provide a foundation upon which to base a long range rate structure, (2) to furnish pertinent information in connection with a future system study to be prepared by the cooperative,

1/ Prepared by William G. Mills and F. O. Billings, Applications and Loans Division, REA, USDA.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

BY SAMUEL JOHNSON

LONDON: Printed by A. MILLAR, in Strand, 1742.

The reign of King Charles the First, who reigned from the year 1625 to 1649, was a period of great importance in the history of England. It was a period of religious and political controversy, which culminated in the execution of the King. The reign was marked by the struggle between the King and the Parliament, and the rise of the Puritan movement. The King's policy of religious intolerance and his attempt to impose uniformity on the Church of England, led to the outbreak of the Civil War. The war was a series of conflicts between the King's forces and the Parliamentarian forces, which resulted in the death of the King. The reign of Charles the First was a period of great suffering and hardship for the English people, and it was a period of great importance in the history of the country.

THE HISTORY OF THE REIGN OF KING CHARLES THE FIRST, BY SAMUEL JOHNSON. LONDON: Printed by A. MILLAR, in Strand, 1742.

and (3) to serve as a guide for a utilization program.

Consideration has been given to present rural industrial loads which are not now served by central station power and to those which may be expected to be served as the result of the further development of the natural resources of the area.

The attached key maps show

- (1) Tentative cooperative boundaries;
- (2) Existing and proposed cooperative lines;
- (3) Probable area of development;
- (4) Location and size of existing power loads requiring three-phase power; and
- (5) Estimated kilowatt demands and kilowatt hour consumption at each of the tentative points of delivery for Bonneville Power.

SUMMARY AND CONCLUSIONS

An analysis of all of the factors affecting the economic development of the area under consideration indicates that there will be a marked increase in the use of electricity on the farms and in the rural sections included in the operating area of the cooperative.

The territory served by the cooperative covers such a large area that it will be necessary to provide more than one point of delivery in order to maintain satisfactory voltage regulation on the cooperative's 12.5 KV system. For this reason the load estimates are segregated as to power requirements of each county and are set forth in that manner in Tables I, II, III and IV.

Each table combines the estimated kilowatt demands and kilowatt hour consumption of the different types of loads to be served at the end of two, five and ten years. Suitable diversity factors, as indicated in each table, are applied to each type of consumer in an effort to arrive at the diversity which will be experienced between the consumers of each type and between each group of types on the entire system. For this reason a diversity factor is applied to the maximum demand shown for each consumer even though the particular consumer will register a maximum demand at the same time as other consumers of the same type. In these cases the diversity factor represents the total system diversity factor rather than diversity between each consumer in any particular type.

In order to check the results obtained by the application of the estimated diversity factor, the total system load factor has been calculated based on the estimated maximum demand and total annual kilowatt hour consumption. The load factors as calculated range from 43 percent to 45 percent, which is approximately the same as that now being experienced on the system. The estimated kilowatt hour consumption at each point of delivery has been shown to include system

losses of 22 percent at the end of two, 20 percent at the end of five, and 18 percent at the end of ten years. Operating records of the cooperative indicate that present system losses are approximately 25 percent.

The summary of estimated loads to be served as reflected by Table V of this report indicate there will be a demand of approximately 2,200 kilowatts within two, 4,800 kilowatts within five and 8,000 kilowatts within ten years. Likewise, it is estimated that there will be an annual requirement of approximately 8 million kilowatt hours at the end of two, 18 million kilowatt hours at the end of five, and 30 million kilowatt hours at the end of ten years.

The annual gross revenue derived by the Bonneville Power Administration as a result of the sale of this energy, based on an average rate of 3 mills per kilowatt hour, would approximate \$24,000 at the end of two, \$54,000 at the end of five, and \$90,000 at the end of ten years. The above revenues would be augmented by the sale of additional energy which could be marketed to the municipality of Bonners Ferry and, in the event that contemplated municipal ownership movements are successful, to the municipalities of Sandpoint and Priest River.

Under the present wheeling arrangements affected as an emergency measure during the war, Bonneville power is being furnished the cooperative for its Idaho system through facilities of the Washington Water Power Company and Mountain States Power Company at a cost to the cooperative of approximately 6 mills per kwh. This arrangement will remain in force for 18 months following the official declaration of the end of the war, at which time the cooperative may be forced to revert to a higher rate from its former power supplier. The failure to provide an adequate supply of low cost power will seriously hamper the potential economic and industrial development of the area and will deprive many rural residents of the benefits of low cost power. It is therefore recommended that the results of this survey be made available

to the Bonneville Power Administration for its consideration in the determination of the feasibility of making Bonneville power available to the cooperative over government owned facilities before the expiration of the present wheeling arrangements with Washington Water and Power Company and Mountain States Power Company.

It is further recommended that an intensive utilization program be initiated by the cooperative, assisted by the Rural Electrification Administration, in order to hasten the achievement of the estimated kilowatt hour consumption foreseen in this report.

METHOD OF SURVEY AND SOURCES OF INFORMATION

Each county in the area was visited and pertinent information secured from county agents, chairman of AAA boards of directors, members of cooperatives' boards of directors, other cooperatives' managers, officials of the United States Forest Service, Soil Conservation Service, the United States Geological Survey, and from county tax assessors.

Operating records of the Northern Idaho Rural Electric Rehabilitation Association, Inc., were examined and analyzed to secure information as to load densities on individual sections of the system.

The basis for the estimated KWH consumption for farm members was taken from the results of a recent survey by means of a questionnaire circulated to every farm member now being served by the cooperative. Based on the results of the survey, the saturation of major appliances per 100 consumers was determined and KWH consumption per farm member computed from accepted standards of average usage per unit appliance. Since the questionnaire was devised to show the members' intentions in the use of appliances over a limited period of time, the estimates arrived at in the above manner were tempered to reflect the average consumption which could be anticipated at the end of the two, five, and ten years. In determining the latter estimated average consumption per consumer, consideration was given to the experience of operating systems in areas of similar economic and productive characteristics; the application of electric power to productive use determined by the prevailing type of farming and other related enterprises existing in the area; effect of electric service toward stimulation of new enterprises, and other economic activities in the community; the general progressiveness of the farm people and their willingness to adopt new methods and technique with the use of electricity in farming

operations; and the influence of low wholesale power rates.

For the purpose of tabulation of power requirements, irrigation, hay drying and feed grinding loads are analyzed separately based on information gathered from the questionnaire survey. Rural industry and other loads included in the survey are based on known load requirements and KWH consumption of similar plants already in operation.

The basis for the number of farm consumers to be served in two, five, and ten years was taken from the results of an unelectrified farm survey conducted for this purpose. Estimates of the number of recreational consumers to be served were based on the present trend in the use and development of recreational facilities in the area.

Information regarding the sale and development of industrial farm equipment was secured from sales representatives operating in the area.

DESCRIPTION OF THE AREA

The area under consideration is comprised of Bonner and Boundary Counties in northern Idaho and the western portions of Sanders and Lincoln Counties in adjacent Montana. It is mountainous and of moderately high elevation. The populated sections approximate 2000 feet altitude.

The area is part of the Columbia River drainage. Two tributaries flow through the area, and their valleys are the scene of the agricultural effort that exists in the area. The Kootenai River flows south from Canada into the north portion and drains the entire north portion before returning to Canada. The Clark Fork River and the Pend Oreille River (really one river with two names) drain the lower half.

Two well known lakes are located in the area and give it outstanding recreational possibilities. Pend Oreille Lake receives the Clark Fork River and discharges into the Pend Oreille River. It is the larger of the two. It has a very rugged shoreline, and summer cottage sites are concentrated at favorable locations. Priest Lake is twenty-five miles long and most of its entire shoreline is suited to camp development. Both lakes are about equidistant from Spokane and are expected to undergo much development as Spokane grows.

The mountains have a timber cover in various stages of growth. Some of it is recovering from serious burns, especially the cover in Sanders County, Montana. But much of it is now supporting a sustained cut and will continue to do so. Lumbering is now the principal income producing activity in the area and probably will continue to remain so.

Agriculture is practiced in the river valleys and because of a short

growing season and conditions of terrain, is devoted primarily to dairying and supporting crops. The presence of river water will lead to more and more irrigation as the farms are enlarged and as the practice of irrigation progresses. Flat lands along the curving Kootenai River in Boundary County produce wheat of very high quality but this development has reached its peak and is apt to decline.

The northern half of the area is handicapped by poor roads, but plans for improvement will be put into effect soon. The next five years should witness the completion of these plans. Trucking service is governed by the conditions of the roads, and much improvement in highway construction and maintenance is needed. Improvement in road conditions will be geared to the industrial and agricultural growth of the whole Pacific Northwest. It will be forthcoming to some degree as the results of the wealth producing possibilities of low cost electric power in the rural areas and small towns manifest themselves.

The area is served by three railroads: The Great Northern, the Northern Pacific and the Spokane International. Railroad service is adequate for a much greater development than now exists; adequate, that is, as far as physical plant is concerned. The rate structure is not considered here.

Generally speaking, Bonner and Boundary Counties in Idaho, and Lincoln County in Montana, contain the greatest promise of development, and the next ten years will see them without doubt contributing their share to the overall development of the region as a whole, and participating to the full in the benefits of low cost public power widely distributed.

ECONOMY OF THE AREA

Lumbering. Lumbering in all of its customary forms is the principal economic activity of the area. Parts of three national forests are located in the area: Kaniksu, with its headquarters in Sandpoint, Idaho; Cabinet, with its headquarters in Thompson Falls, Montana; and Kootenai, headquartered in Libby, Montana. The requirements of war resulted in a greatly increased cut, compared to prewar cuts, and the requirements of the first few years of peace will be almost equally as great. Forest Service officials show no concern over the situation and predict a return to substantial sustained yield levels in a few years. A permanent large scale timber industry is assured for the area. The spheres of activity will not be uniform. Some parts are better stocked than others. Based on information available it is concluded that Lincoln County in Montana, Boundary County in Idaho, and the western half of Bonner County in Idaho, will be the principal areas of sawmill activity.

Sandpoint, Idaho is now probably the principal pole distributing center in the Pacific Northwest. Cedar poles are almost exclusively distributed from this point. As the supply of cedar diminishes the treating and shipment of substitute species of pole will probably lessen Sandpoint's present dominant position in the pole industry and cause a spreading out of this kind of timber activity. The Forest Service is trying to conserve the remaining cedar stands for growth to the larger sizes, sizes not available or not suited to pole use in other species. It is trying to develop lodgepole pine as a substitute for the smaller sizes of cedar. The very large and scattered supply of lodgepole should result in a considerable number of pole treating plants being established during the next ten years.

The newer types of wood products, products made in part from wood wastes, provide further economic opportunities in the area. Lincoln County could be the scene of substantial activity in this new field within ten years, but the present embryo state of development does not allow more than a tentative statement in that regard. However, if the new types of wood products develop as confidently predicted by those familiar with them, the area is certain to receive its share of the new enterprises.

Agriculture. Next to lumbering, agriculture is the principal economic activity of the area, and it is increasing in importance. The rate at which land is being cleared and devoted to agriculture is rapidly increasing with the substitution of machinery for manual labor in clearing operations. In the five years from 1940-1945 there was an increase of over 20 percent in Bonner and Boundary Counties in land from which crops were harvested, hay cut, or in orchards. Figures are not yet available of the increases in Sanders and Lincoln Counties in Montana. Good roads are a major contributing factor in the development of agricultural enterprise, and in those sections where roads are still unimproved the farms are small and provide mainly the food and shelter requirements of the farmer, the cash income being derived from other pursuits. This was true of Bonner and Boundary Counties in Idaho fifteen years ago, and is true at present in the western part of Lincoln County, Montana where cleared land averages not more than 10 acres per farm. Improved roads are part of a post war plan for this area and this, coupled with the availability of low cost electricity, should raise the level of agricultural enterprise in the section to that of the rest of the area.

Dairying is the principal agricultural activity in Bonner and Boundary Counties, Idaho, and in the Clark Fork valley west of Thompson Falls, Montana.

The area in Idaho is part of the Spokane milk shed and fresh milk is picked up daily by milk trucks and delivered to Spokane dairies. Cream from the Clark Fork valley in Montana is shipped to cooperative creameries in Plains, Montana and Sandpoint, Idaho. The extent of increase in dairying in Bonner and Boundary Counties during the last five years is shown by these figures: Cows and heifers milked increased 25 percent; gallons of milk produced increased 18 percent; and gallons of whole milk sold increased 220 percent, reflecting the great increase in demand for whole milk by the enlarged military and civilian population in the vicinity of Spokane during the war. The expected industrial growth of the Spokane area should result in a continued expansion of dairying during the next ten years.

Conditions in the area do not generally encourage the raising of beef cattle. Adequate grazing lands are available to a few farms and a few thousand head of beef cattle are raised, but there is little likelihood that this activity will increase. A meat packing plant is located in Sandpoint, which receives some of the cattle raised. The remainder are trucked to Spokane.

The area is suitable for poultry raising and an increase in poultry activity is expected to keep pace with the growth of Spokane. During the five years from 1940-1945 the production of eggs increased 40 percent, while the size of flocks changed little. Most of the feed requirements are purchased. Feed purchases in dollars for livestock and poultry in Bonner and Boundary Counties increased over 200 percent in the five year period. It is expected that in the future a greater percentage of feed for poultry will be raised locally than is now the case, though nothing approaching self-sufficiency is expected. Most poultry farms are on the poorer soils and occupy but little land, and the raising of feed is usually not practical.

Most of the field crops of the area are related to dairying. Over half of the land tilled in 1945 produced hay crops. In Bonner County over three-fourths of the acreage produced hay of various kinds, and in Boundary County it was near one-third. This fact provides a considerable opportunity for the use of power in irrigating the land and in drying or chopping hay. Boundary County produces a very high grade of wheat. In 1945 nearly 12 thousand acres devoted to that crop. The peak has been reached and wheat production is expected to decline gradually. Potatoes grown for seed, and other vegetables grown for seed, are on the increase. Much of the river land, now producing wheat, is expected to be converted to seed production in the next ten years for use in the Columbia Basin. These specialty crops will occupy a relatively small acreage. Most of the agricultural activity of the future will be geared to the production of milk. This provides a basis for optimistic estimates of future income levels and requirements for power.

Mining. Mining now occupies a minor role in the area. During the war large scale test drilling took place over much of the region, the subject area included. The results of the drilling and the mining potentials arising from it are not yet available. Local opinion holds that if low cost power in adequate amounts is made available, many small operations will become feasible.

Recreation. The project area has outstanding recreational opportunities. Pend Oreille Lake and Priest Lake, both in Bonner County, face bright futures. Bull Lake and the Yaak River territory in Lincoln County, Montana also face bright futures, but on reduced scales because of greater distance from urban centers. In another section of the report it is estimated that in the next ten years over 800 summer cottages will be built on the shores of Pend Oreille and Priest Lakes. This development will be geared, of course, to the growth

of Spokane. Both lakes are approximately 80 miles from Spokane. The Forest Service controls most of the shore line of Priest Lake and it has provided water systems at selected spots for the use of cottagers who build on the sites. Both lakes are noted for their rugged and wild beauty, and are among select examples of western scenery.

The following newspaper articles appearing in recent issues of The Spokesman-Review (local newspaper) attest to the wide spread interest in the recreational possibilities of Pend Oreille Lake:

PEND OREILLE PRAISED BY CALIFORNIA TOURIST
Sandpoint, Idaho, July 11.

"The Sandpoint Chamber of Commerce is receiving inquiries from southern California residents who want to vacation and fish here in August and September, according to Jim Parsons, secretary-manager.

"Of visitors who stop at the chamber offices for tourist information, Californians invariably are enthused about the Lake Pend Oreille area and predict it will become a popular vacation spot for those from the Golden Bear state as its fame spreads,' he said."

PEND OREILLE'S FAME SPREADS
Sandpoint, Idaho, June 26.

"A spectacular colored picture of Chimney rock is on the cover of the June issue of Motor Court Age, trade journal of the motor court industry, just received here.

"The magazine contains a lengthy article on 'Idaho-America's Last Frontier,' illustrated with five pictures of Lake Pend Oreille scenic and fishing views. The pictures were taken by Ross Hall, Sandpoint photographer. The article, written by Tom Cuning, executive secretary, Idaho state board of publicity, contains a brief history of the development of rainbow fishing here.

"The current issue of News and Views, magazine of General Motors corporation, contains a picture of Jackie Parker and the big rainbow he caught. He is the son of O. B. Parker, General Motors dealer here.

"A special illustrated article on Lake Pend Oreille's scenic attractions and big rainbow trout is now appearing in Chicago, New York and other eastern newspapers. This material

was prepared by the Chamber of Commerce.

"The chamber this week began distribution of a new advertising folder which features Lake Pend Oreille as a vacation and fishing center."

OTHER UTILITIES

In addition to the Northern Idaho Rural Electrical Rehabilitation Association, Incorporated, the following utilities operate wholly or partially within the area:

The Mountain States Power Company serves the towns of Sandpoint, Priest River, Hope, East Hope and Clark Fork, and approximately 200 farms in Bonner County. A steam plant of approximately 400 hp capacity, sawdust fired, is maintained as a stand-by plant in Sandpoint. Power is purchased from the Washington Water Power Company at a point in the vicinity of Newport, Washington.

The municipality of Bonners Ferry operates its own electrical generating plant and distribution system, serving the towns of Moyie and Bonners Ferry and approximately 50 farms in the surrounding area. The generating station, located in the Moyie River canyon at Moyie, has an ultimate generating capacity of approximately 2000 kilowatts at 80 percent power factor. Only one of two 1500 hp high head turbines is being operated at the present time and this on a head of approximately 80 feet with a reduced capacity of approximately 900 hp. The original installation is still in service and consists of a 550 hp turbine operating at approximately 80 feet head. In addition to the hydro generation facilities, the town owns a diesel electric plant having 1-300 KVA generator. The present peak is approximately 750 kilowatts and the system load factor is approximately 57 percent. Cost of generated power delivered at the switchboard in Bonners Ferry is approximately 4 mills per kilowatt hour.

The Montana Light and Power Company (a privately owned utility, not to be confused with the Montana Power Company) serves the town of Troy in Lincoln County, Montana. This utility was recently acquired by the J. Neils

Lumber Company and others, in order to acquire the water rights of a generating station at the mouth of Lake Creek. This plant is being enlarged to approximately 3000 KVA capacity and will generate power for the towns of Troy and Libby, as well as for the power requirements of the J. Neils Lumber Company at Libby. The distribution system in the town of Libby is owned and operated by the Mountain States Power Company which purchases power from the J. Neils Lumber Company. Electric retail rates in both the towns of Troy and Libby are identical and are extremely high. Residents of both towns have expressed dissatisfaction with the retail rates and in the event adequate low cost power is made available in this area a municipal ownership movement may be started in both communities.

The Montana Power Company operates a hydroelectric generating station at Thompson Falls and serves the towns of Thompson Falls, Plains, and Paradise, Montana. The company sells power to the Northern Idaho Rural Electrical Rehabilitation Association, Inc., at Thompson Falls, at approximately 9 mills per kilowatt hour to supply the Montana section of its existing system. In the event the cooperative is unable to obtain lower wholesale rates in this area it is probable that this portion of the system will eventually be connected to the Sandpoint substation and supplied with public power from that point. This development would depend to a great extent on whether or not the present facilities of the Mountain States Power Company serving Hope and Clark Fork could be acquired by the cooperative.

In order to present a clear picture of the competitive retail rates throughout the area, copies of the published rate schedules of the various utilities were secured and are included in the following pages under "Retail Rates",

RETAIL RATES

Northern Idaho Rural Electrical Rehabilitation Ass'n. Inc.

Schedule A - Farm and Home Service

First	40 kwh, or less, per month	@ \$3.00 per month
Next	15 kwh per month	@ 6.0¢ per kwh
Next	45 kwh per month	@ 4.0¢ per kwh
Next	150 kwh per month	@ 3.0¢ per kwh
Over	250 kwh per month	@ 1.5¢ per kwh

Minimum charges: \$3.00 per month plus 75¢ per kva
over 3 kva transformer capacity required.

Schedule B - Commercial and Small Power Service

First	40 kwh per month	@ 7.5¢ per kwh
Next	60 kwh per month	@ 6.0¢ per kwh
Next	900 kwh per month	@ 3.0¢ per kwh
Next	2,000 kwh per month	@ 2.5¢ per kwh
Over	3,000 kwh per month	@ 1.5¢ per kwh

Minimum monthly charge: \$3.00 plus 75¢ per kva
over 3 kva transformer capacity required.

Schedule LP - Large Power Service

\$1.50 per month per KW of billing demand:

Plus energy charges of -

3.0¢ per kwh for the first 50 kwh used per month
per kw of billing demand
2.0¢ per kwh for the next 100 kwh used per month
per kw of billing demand
1.35¢ per kwh for all remaining kwh used per month

Minimum Monthly Charge: The minimum monthly charge shall be
the highest one of the following charges as determined
for the consumer in question.

- (1) The minimum monthly charge specified in the contract for service.
- (2) A charge of \$0.75 per KVA of installed transformer capacity.
- (3) A charge of \$25.00.

Schedule WH - Controlled Water Heater Service

Off-Peak Rate: 1.2 cents per kilowatt hour.

Bonnors Ferry, Idaho:

Schedule A - Residential Lighting Meter Rate

First	40 kwh used per month	6.5¢ per kwh
Next	160 kwh used per month	3.0¢ per kwh
Next	100 kwh per month	2.5¢ per kwh
Over	300	2.0¢ per kwh

Minimum charge per month: \$1.00

Discount if paid by tenth of month: 10%

(Bonners Ferry - cont'd)

Schedule B - Commercial Lighting Meter Rate

First 100 kwh used per month	6.5¢ per kwh
Next 300 kwh used per month	5.0¢ per kwh
Next 200 kwh used per month	4.0¢ per kwh
Balance	3.0¢ per kwh
Minimum charge per month: \$1.00	
Discount if paid by tenth of month: 10%	

Schedule E - General Power Meter Rate

First 15 kwh used per month per hp of connected load	6.0¢ per kwh
Next 85 kwh used per month per hp of connected load	2.0¢ per kwh
All in excess of 100 kwh per month per hp of connected load	1.5¢ per kwh
Minimum charge per connected hp per month	50¢
Discount if paid by tenth of month	10%

Schedule H - Water Heating Flat Rate

	Class A With Range	Class B Without Range
600 Watt	\$2.00	\$2.50
750 Watt	\$2.50	\$3.00
1,000 Watt	\$3.00	\$3.50
1,500 Watt	\$4.50	\$5.00

Mountain States Power Company: (All territory served by the company in Idaho)

Residential Rate

6.5¢ per kwh for the first 20 kwh per month
5.5¢ per kwh for the next 30 kwh per month
3.0¢ per kwh for the next 100 kwh per month
2.5¢ per kwh for the excess kwh per month
Minimum monthly charge: \$1.00

Commercial Lighting and Small Power

Rate: Net

First 100 kwh per month @ 6.5¢ per kwh
Next 200 kwh per month @ 5.5¢ per kwh
Next 300 kwh per month @ 5.0¢ per kwh
Next 400 kwh per month @ 3.0¢ per kwh
Excess kwh per month @ 2.5¢ per kwh
Minimum Charge: The minimum bill under this schedule shall be \$1.00 per month.

Hot Water - Residential and Commercial

Flat - .0035 cents per watt per month. (Not available for installations of over 2000 watts.)
Meter - .01 cent per kwh. (Required of all installations of 2000 watts and over.)

Mountain States Power Company: (Libby, Montana)

All Residential Service Rate - Schedule B

First 20 kwh per month @	7.0¢ per kwh
Next 30 kwh per month @	4.5¢ per kwh
Excess kwh per month @	3.0¢ per kwh
Discount - None	
Minimum Bill - \$1.00 per month for lights and small appliances ,	
\$2.00 per month for lights and range or motor	
load of more than 1 hp or both.	

Heating, Cooking and Refrigeration - Schedule C

All kwh used per month @	3.5¢ per kwh
Discount: 10% if paid by tenth of month	
Minimum Bill: \$1.25 per month - net.	

Commercial Lighting Rate - Schedule A

First 50 kwh per month @	7.0¢ per kwh
Next 450 kwh per month @	5.0¢ per kwh
Next 500 kwh per month @	4.0¢ per kwh
Excess kwh per month @	2.5¢ per kwh
Discount - None	
Minimum Bill - \$1.00	

General Power - Schedule F-1

First 10 hp - 65 kwh per hp per month @	6¢ per kwh
Next 20 hp - 65 kwh per hp per month @	5¢ per kwh
Excess hp - 65 kwh per hp per month @	3¢ per kwh

Secondary Schedule: Applies only to monthly consumption in excess of 65 kwh per hp per month of customers connected load.

First 500 kwh used per month @	2.7¢ per kwh
Excess kwh used per month @	2.5¢ per kwh

Discount: 10% if paid by 10th of month

Minimum Bill: \$1.00 net per hp per month of connected load.

Montana Light and Power Company: (Troy, Montana)

Schedule 2-B Residential Combination lighting, heating and cooking service

7.0¢ per kwh for the first 20 kwh per month	
4.5¢ per kwh for the next 30 kwh per month	
3.0¢ per kwh for the excess kwh per month	
Minimum Bill: \$1.00 per month for light and small appliances	
\$2.00 per month for light and range or motor loads	
of more than 1 hp or both	

(Montana Light & Power - cont'd)

Schedule 1-C Commercial Lighting Service

7¢ per kwh for the first 50 kwh per month
5¢ per kwh for the next 450 kwh per month
4¢ per kwh for the next 500 kwh per month
2.5¢ per kwh for the excess kwh per month
Minimum Bill: \$1.00 per month

Schedule F-1 General Power Service

Primary Schedule

Applies only to the first 50 kwh used per month per hp of connected load
5.0¢ per kwh for the first 50 kwh per hp per month for the first 10 hp of connected load
3.6¢ per kwh for the first 50 kwh per hp per month for the next 20 hp of connected load
3.0¢ per kwh for the first 50 kwh per hp per month for the excess hp of connected load

Secondary Schedule

Applies to all kwh in excess of 50 kwh per hp of connected load
2.4¢ per kwh for the first 500 kwh per month
2.25¢ per kwh for the excess kwh per month

Minimum Bill: \$1.00 per hp of connected load per month

Schedule E-2 Flat Rate Water Heating Service (Residential)

Rate: 2 1/2 mills per watt of connected capacity of water heaters

NOTE: This schedule is to be replaced by E-1 on 9/1/46

Schedule E-1 Metered water-heating Service (Residential)

(a) 20 to 40 gallon tanks, thermostatically controlled

7.0¢ per kwh for the first 20 kwh per month
4.5¢ per kwh for the next 30 kwh per month
3.0¢ per kwh for the next 99 kwh per month
1.25¢ per kwh for the next 450 kwh per month
3.0¢ per kwh for all in excess of 599 kwh per month

(b) 41 to 65 gallon tanks, thermostatically controlled

7.0¢ per kwh for the first 20 kwh per month
4.5¢ per kwh for the next 30 kwh per month
3.0¢ per kwh for the next 99 kwh per month
1.25¢ per kwh for the next 550 kwh per month
3.0¢ per kwh for all in excess of 699 kwh per month

Minimum Bill: \$2.00 per month.

Schedule E-3 Flat Rate Water Heating Service (Commercial)

3 mills per watt of connected capacity of water heater, on an annual basis

5 mills per watt of connected capacity of water heater, on a monthly basis

Minimum Bill: \$3.00 on an annual basis--\$5.00 on a monthly basis.

(Montana Light & Power - Cont'd)

Schedule 7-B Commercial Cooking and Heating Service

2.25¢ per kwh for the first 2500 kwh per month
1.75¢ per kwh for the next 2500 kwh per month
1.5¢ per kwh for all in excess of 5000 kwh per month
Minimum Bill: \$2.00

A comparison of the above rates indicates that the cooperative's rates compare favorably with private utility rates in the high use brackets but in the low brackets the cooperative's rate is higher.

SOURCE OF SUPPLY

The cooperative originally purchased all of its power requirements for it's Idaho System from the Mountain States Power Company at Sandpoint. Later arrangements were made with Bonneville Power Administration whereby Bonneville power is delivered to the cooperative over the transmission facilities of the Washington Water Power Company and the Mountain States Power Company. In consideration of the wheeling arrangements with the Washington Water Power Company, the Bonneville Power Administration delivers 2 kwh to the power company for each kwh the power company transmits for the cooperative. The cooperative in turn pays the Bonneville Power Administration 3.5 mills per kwh plus 10 percent in consideration of this wheeling arrangement. In addition to the above charge the cooperative pays a sum of 2 mills per kwh to the Mountain States Power Company as a wheeling charge for all power delivered over its facilities. This results in the cooperative paying approximately 6 mills per kwh for all power purchased under this arrangement. This agreement will remain in force for 18 months following the official declaration of the end of the war, at which time the cooperative will be obliged to make other arrangements for its power supply.

The Montana Power Company sells power to the Northern Idaho Rural Electrical Rehabilitation Association, Inc., at approximately 9 mills per kilowatt hour to supply the Montana section of the cooperative's existing system. In the event the cooperative is unable to obtain lower wholesale rates in this area it is probable that this portion of the system may eventually be connected to the Sandpoint substation and supplied with public power from that point.

TYPES OF LOADS TO BE SERVED

The loads which are served now, or which may be served in the future, by the cooperative, are discussed in the following pages. As materials become available and feasibility is established, the cooperative contemplates an extensive construction program to serve the remaining number of unserved farms and other loads.

Farms. Present cooperative loads in the area are for the most part comprised of farm improvements and very small rural communities. The extent to which area coverage has been attained is reflected by the fact that out of a total of 1,411 farms in Bonner County and 566 farms in Boundary County only 770, approximately, are now being served. Scarcity of construction materials during the last four years has materially retarded the extension of the cooperative's system.

Consumption of electricity by farm users has been greatly retarded due to the fact that appliances and electric farm equipment have not been available during the past four years. An analysis of the operating records of the cooperative indicates that during December 1945 a total of 905 farms were served having an average consumption of 78 kilowatt hours each. During the same period a total of 187 non-farm members were served having average consumptions identical to those just mentioned. The consumption of the foregoing class of consumers was augmented by 143 commercial and small power consumers which averaged 210 kilowatt hours each, bringing the over-all average consumption of 1,235 members to 93 kilowatt hours per month. An analysis by feeders serving the different sections of the area revealed a surprising uniformity in the average consumption per member; for example, the following farm averages were:

A Line	83 kwh per month
B-1 Line	80 kwh per month
B-2 Line	76 kwh per month
C Line (serving Sanders county)	70 kwh per month

The over-all average for all uses was:

A Line	88 kwh per month
B-1 Line	86 kwh per month
B-2 Line	87 kwh per month
C Line (augmented by the relatively high consumption of a railroad watering and coaling station)	126 kwh per month

When the Bonneville Power Administration makes power available over its own facilities the wholesale rate to the cooperative will be reduced from approximately 6 mills to a maximum of 3.5 mills per kilowatt hour. This will result in a complete revision of the rate structure, including a reduction in the bottom step of the retail rate from 1.5 cents per kilowatt hour to 0.75 cents per kilowatt hour. Corresponding reductions in commercial and large power schedules would also result. The resulting rate reduction, together with the increased use of appliances and electric farm machinery will assure a substantial increase in the average consumption per farm member within the next ten years.

In order to arrive at a basis to be used in estimating the extent of this increase, the Bonneville Power Administration, acting jointly with the cooperative, recently conducted a comprehensive survey by means of a questionnaire circulated to every farm member now being served by the cooperative. The results of this survey indicate that there is a wide-spread interest among the cooperative's members in numerous major household appliances, as well as in sprinkler irrigation and mow curing of hay. Results of the survey are tabulated in Exhibit "A" attached to this report. Attention is directed to the fact that the trends reflected by this survey indicate that the saturation of major appliances will be almost doubled in most instances and tripled in the case of electric ranges within the next twelve months. It is not unlikely that corresponding increases will be reflected within the next five years resulting in a

tremendous increase in the average kilowatt hour consumption per farm member. In order to arrive at an indication of what the total consumption for domestic purposes might be at the end of twelve months, the following summary was prepared using the weighted averages from Exhibit "A":

Anticipated Connections of Appliances Dec. 1947

<u>Type of Appliance</u>	<u>No. per 100 Consumers</u>	<u>Av. monthly Consumption</u>	<u>Total KWH cons. per 100 members</u>
Ranges	16	x 100	1600
Refrigerators	77	30	2310
Washing machines	89	3	267
Vacuum cleaner	27	2	54
Irons	94	5	470
Water heaters	13	240	3120
Hot Plates	67	20	1340
Ironers	7	10	70
Clocks	31	2	62
Coffee maker	26	5	130
Portable heaters	17	30	510
Toasters	58	3	174
Sewing machine	13	1/2	7
Food mixers	26	3	78
Water pumps	59	5	295
Radios	94	8	752
Waffle irons	53	3	159
Roasters	9	10	90
Lights	100	20	2000
Total			13488
Average monthly consumption			135

A similar method was used to arrive at the average kilowatt hour consumption resulting from the use of miscellaneous farm equipment and is as follows:

Anticipated Connections of Farm Equipment
December 1947 - Percent of Total Services

<u>Type Appliance</u>	<u>No. per 100 Consumers</u>	<u>Av. monthly Consumption</u>	<u>Total KWH cons. per 100 members</u>
Water heaters	7	240	1680
Feed cutters (1)	7	15	105
Cream separators	45	5	225
Welders	16	5	80
Cut-off saws (1)	7	5	35
Hay hoists (1)	5	2	10
Ensilage cutters	3	20	60
Fanning mills (1)	9	1	9
Drills	16	3	48
Chicken brooders	70	50	3500

(Anticipated Connections - cont'd)

Type Appliance	No. per 100 Consumers	Av. monthly Consumption	Total KWH cons. per 100 members
Walk-ins	4	100	400
Reach-ins	21	60	1260
Deep-freeze	6	60	360
Feed mixers (1)	14	30	420
Grinding machines (1)	38	3	114
Metal lathes	7	5	35
Feed grinders (1)	10	48	480
Electric fences	54	7	378
Bench saws (1)	5	5	25
Lights	90	15	<u>1350</u>
Total			10574
Average monthly consumption			106

From the above tables it is noted that the average domestic consumption on farms will be approximately 135 kilowatt hours per month per member at the end of the next twelve months, and likewise, the average kilowatt hour consumption, resulting from the use of miscellaneous farm equipment, will be approximately 106 kilowatt hours per month per member. Based on these figures it appears that the total average kilowatt hour consumption per farm member will approximate 240 kilowatt hours per month within the next twelve months. Since it is problematical that appliances and equipment will become available within the next twelve months or two years, the estimated monthly consumption per farm member used in Tables I, II, III and IV is based on an average of 200 kilowatt hours per month within the next two years, 300 kilowatt hours per month within the next five years and 450 kilowatt hours per month within the next ten years. Similarly, the average demand per farm member has been estimated at .8 kilowatts in two years, 1.0 kilowatts in five years, and 1.5 kilowatts in ten years. 1/

Recreational Facilities. The natural beauty, heavy forest cover and mountainous lakes all contribute to make this section one of the most desirable

1/ Engineering Memorandum No. 33R3 dated May 20, 1946 (Maximum Demand Curves)
Rural Electrification Administration - Engineering Division.

recreational areas in the northwestern part of the country. Recent years have emphasized this fact by the increase in the number of summer cottages being constructed on Priest Lake and Pend Oreille Lake. The demand for such building sites has steadily increased and inquiries concerning possible lake shore building sites are constantly being received from interested parties from the midwestern prairie states as well as from people in the Northwest. Residents of the Spokane area are becoming increasingly cognizant of the unusual and desirable building sites available on both of these lakes and an influx of summer residents is expected within the next five years. Local residents of Sandpoint, Bonners Ferry and Newport are rapidly acquiring lake shore sites and in some cases building permanent residences costing up to \$10,000. A majority of these people are deeply interested in the electrical heating of their homes, either by means of built-in electric heating systems or supplemental heating methods by means of portable "Wesix" type heaters. Some form of supplemental heating is desirable to take off the chill during early morning hours and late evening hours even during the hottest summer months. Most of the cabins are, or will be, equipped with sanitary plumbing and electric cooking facilities. In some cases water will be pumped by means of pressure systems from wells, while in some communities which are established along Priest Lake on Forest Service property, the Forest Service provides a gravity water system. In the latter cases, electric water pumps will be used to supply main distribution systems and materially contribute to the potential load to be served. Several of the summer cottages now connected to the lines have reached monthly consumptions of as high as 400 kilowatt hours per month for as many as six months out of the season. The type of consumer who is able to own a summer cottage will also be financially able to acquire most of the energy consuming appliances which contribute to better enjoyment of his summer vacation and it is anticipated that the average summer cottage will consume at

least 1,000 kilowatt hours annually at the end of two years, 1,500 kilowatt hours at the end of five years and 2,000 kilowatt hours at the end of ten years. Likewise, the demands should average at least .2 kilowatts at the end of two years, .3 kilowatts at the end of five years and .4 kilowatts at the end of ten years.

The following tabulation lists the estimated number of summer cottages which may be served at each of the designated areas on Pend Oreille and Priest Lakes, during the next two, five and ten years. The table reflects that a total of approximately 840 summer cottages will be served by the cooperative's lines in Bonner County within the next ten years:

Summer Cottages to be Served

<u>Pend Oreille Lake</u>				
<u>Location</u>	<u>Present 2 yrs</u>		<u>5 yrs</u>	<u>10 yrs</u>
Garfield Bay	20	30	100	150
Talache Mine site	8	10	15	25
Forest Service	0	5	20	40
Camp Bay	0	15	20	25
Glengary	12	15	20	40
Martin Bay	0	8	25	50
Club House Property	0	5	15	30
Bottle Bay	15	20	35	50
Contest Point	10	15	20	30
Totals - Pend Oreille	65	123	270	440
<u>Priest Lake</u>				
Cavanaugh Bay	15	25	50	60
Coolin & Soldier Creek	25	50	75	80
Outlet Bay Area	25	40	50	50
Luby Bay & Kalispel Bay	50	80	90	100
Reeder Bay Area	60	85	110	110
Totals - Priest Lake	175	280	375	400
Total System		403	645	840

As the Forest Service makes available additional recreational areas on Forest Service land on the margin of Priest Lake, it is reasonable to

assume that the entire shore line of the 25-mile-long lake will be developed, probably doubling the number of summer cottages which may ultimately be served.

Definite plans are now being made for the construction of several large resort hotels on the shores of Pend Oreille Lake, southeast of Sandpoint, in Bonner County. It is probable that at least one such establishment will be constructed on Priest Lake.

Private interests are making plans to develop the area around Bull Lake in the southern part of Lincoln County, Montana. These plans include the construction of a 40-room hotel, cold storage locker plant, store, filling station, airport and 30 or 40 cabins. It is the plan of the operators to popularize this resort among wealthy residents of the Chicago area, bringing them into this inaccessible area by plane. It is probable that most of these people will acquire building sites and install their own summer home facilities within the next five or ten years. Plans are also being made for the construction of a resort hotel in the northern end of Lincoln County, approximately eight miles east of Upper Ford. While this development is not expected to be on as large a scale as the Bull Lake development, the area will eventually become a popular resort and provide supplemental load which will contribute to the feasibility of extending the cooperative's lines into that section of the country. Necessary financial arrangements have been completed for both of these projects and it is anticipated that they will be constructed as soon as materials become available in sufficient quantities.

Drainage. During the flood season the Kootenai River, in the north central part of Boundary County, inundates all of the low-lying land in the river valley. Most of this land is fertile silty loam, suitable for the production of high protein wheat crops. Much of the land has been diked

and pumping plants installed to drain the areas of flood and run-off waters from the surrounding hills. A total of 17 irrigation districts have been established which operate drainage pumps from two to three months out of the year. The location of the districts and approximate location and size of each pump is shown on Drawing No. I. At present only two districts are pumped by means of electric power furnished by the municipal utility at Bonners Ferry; a majority of the others are pumped by means of diesel engines or farm tractors. At least one district has made application to the cooperative to furnish electric power for the operation of a 50 horsepower electric motor. It is probable that this pump will be served from the cooperative's lines during the 1946 season. It is estimated that each district will have an average power load of at least 50 kilowatts and that a total of 15 districts will be served at the end of 10 years at a diversity factor of approximately 1.67.

Irrigation. In the past few years wide spread interest in irrigation has been manifested among the dairy farmers of the area who raise hay. A majority of these farms are located on the uplands and due to the rolling nature of the land are not suitable to irrigation by means of gravity ditches. In order to ascertain the extent of the interest in irrigation, both by means of gravity ditches and by sprinkler irrigation systems, this information was requested in a questionnaire circulated by the cooperative among its members. The questionnaires were numbered according to the location of the member and the results tabulated indicate that a total of 130 members were interested in irrigating 4,738 acres, or an average of approximately 36 acres per farm. Since a majority of these installations, whether by means of gravity ditches or sprinkler irrigation, will require the water

to be pumped, it is assumed that each installation will provide a potential use of low cost electric power. In the case of gravity systems, water will be pumped from rivers, streams or reservoirs into ditches where it will be distributed by means of laterals over the area to be irrigated. The greater portion of the land to be irrigated by means of ditches lies along the Kootenai Valley and at present is devoted to the production of high protein wheat. The greater part of the land to be irrigated by sprinkler systems is situated on the uplands and motor installations will be installed either along ditches or existing streams and reservoirs to pump the water into the sprinkler systems. In either case it has been assumed, on the basis that 1 hp will irrigate 5 acres of land, that the average pump will be approximately 7 hp and will have a maximum demand of 6 kilowatts each. Applicable diversity factors have been applied in accordance with the formula set forth in the load summary on Tables I, II, III and IV. The total number of irrigation pumps to be served was arrived at by applying the percentages of replies received to the number of farm members served. This percentage indicates a potential of 332 irrigation pumps in the area covered, and on the basis of an average of 36 acres per irrigation pump, represents a total of 11,952 acres to be irrigated.

Hay Drying and Grinding. Since the agricultural economy of the area is closely geared to small dairy farms which sell fresh milk on the Spokane market, hay drying is expected to achieve widespread acceptance within the next decade. The results of the questionnaire circulated by the cooperative indicate that a total of 70 dairy farmers are interested in the immediate installation of hay drying equipment. On the basis of estimates made by prominent dairy operators, county agents, and AAA board members throughout the area, this figure has been increased to include approximately 80 percent

of the farmers who will irrigate hay crops. In their opinions a majority of the farmers who raise hay for dairy cattle feed have not been fully informed of the merits and advantages that mow curing hold over field curing.

The average dairy farmer milks from 10 to 12 cows. It is the aim of the dairymen to increase their herds to an average of 20 cows. This, in turn, would necessitate the production of approximately 90 tons of hay (based on an estimated requirement of 3 tons of hay per cow per year) and it is necessary to maintain at least 30 head of dairy stock in order to milk 20 cows. Under normal conditions approximately 50 kilowatt hours of electrical energy is required to mow cure one ton of hay. On this basis the average farmer would use approximately 4,500 kilowatt hours per year for hay curing. To be conservative, the average consumption per hay drier is estimated at 3,500 kilowatt hours per year, and it is assumed that an additional 1,500 kilowatt hours will be used in grinding hay and in miscellaneous feed grinding operations. It is also assumed that the average hay drying installation will require a 5 hp motor having a maximum demand of 4 kilowatts and that the hay drying installations will have an operating diversity factor of 2.

RURAL INDUSTRIES. Rural industrial loads served will for the most part be dependent upon the chief natural resource of the area which is lumber. The mineral resources of the area are extensive but have not been fully developed. A small part of the foreseeable industrial load to be served by the cooperative will stem from mining operations. Other rural industrial loads will develop from the handling and processing of agricultural products raised within the area and from such commercial and industrial loads as are dependent upon rural trade and the servicing of communication and transportation facilities throughout the area. Each of the various types of rural industrial development is discussed in the following paragraphs.

Lumbering. The manufacture of lumber and lumber products has long been the chief resource of the area. Numerous sawmills and shingle mills are located in the area to be served by the cooperative. In past years much of the lumbering, particularly on private lands, was conducted without regard to maintenance of stands of timber on a sustained yield basis; however, except for temporary over-cuts caused by war demands, all timber stands on National Forest lands are governed by strict regulations as to the method of cutting with the one thought of conservation of this important crop so that it will not be depleted for future generations. While no great increase in the number of sawmills is foreseen, the present establishments will be permanent due to the restrictions under which timber is cut. Because of the increased demand for timber products, a few new mills are expected to be established in the more inaccessible areas. Constant road improvements help to make this possible. Several of the established mills are now electrified and are being served by the Bonners Ferry municipal utility and the Mountain States Power Company. The power requirements

of an electrified sawmill at Bonners Ferry, and one at Sandpoint, each of which cuts approximately 20,000 board feet per day, were analyzed as follows:

Bonners Ferry Mill -

Head saw	Powered by diesel
Edger	40 hp
Trimmer	15 hp
Live rolls from head saw	5 hp
Waste conveyors	5 hp
Small sawdust conveyor from head saw	2 hp
Total	72 hp

Sandpoint Mill -

Head saw double, sawdust conveyor from trimmer, edger, 3-12 in. saws and live rolls all driven by 1-2300 volt, three-phase motor	100 hp
Trimmer	10 hp
Slab cutoff saw	5 hp
Sawdust conveyor	5 hp
Log hoist	3 hp
Total	123 hp

Information furnished by the Mountain States Power Company indicates that the average installed horsepower per mill cutting 20,000 board feet of lumber per day will be approximately 100 hp and that approximately 35 kilowatt hours are required to saw, edge and trim 1,000 board feet of lumber. On this basis the average annual consumption of a mill cutting approximately 20,000 board feet of lumber per day and operating 210 days per year would approximate 150,000 kilowatt hours. The average minimum demand after application of a diversity factor of 2 is estimated at approximately 50 kilowatts.

At the present time there are 5 circular sawmills and one planing mill located in Boundary County. Of these, two are electrified and are being served by the municipal plant at Bonners Ferry. Due to the excessive waste encountered in circular sawmills, it is planned to install a large band mill cutting approximately 40,000 board feet per day in the vicinity of Bonners Ferry. It is anticipated that the cooperative will serve this load.

In the past most sawmills have been operated by steam power for the following reasons: (1) to dispose of waste;(2) to operate "shotgun carriages," "head saws" and "niggers", the power requirements of which are of such a nature as to provide too great a shock to a small electric system; (3) to provide steam for a "hot pond" during winter operations; and (4) to provide steam for dry kilns.

Prior to the war the problem of disposing of waste products was partially solved by shipping slab wood and sawdust edgings to the Spokane area to be used as fuel. War time OPA ceilings have made this market unprofitable and other methods of disposal have had to be utilized. A great proportion of the 2 million board feet of waste created in the Bonners Ferry area in 1945 was disposed of in "burners" and produced no revenue whatever. Post war utilization of wood wastes will gradually make it uneconomical to continue to use them as fuel for steam boilers. In addition, the fire hazard, ever present where wood wastes are burned, makes steam operation undesirable. For these reasons it is the concensus of local foresters and mill operators that most of the permanently located sawmills in the area will be powered by electricity, when, and if, an adequate low cost source is made available. On the above assumption it is anticipated that at least three sawmills in Boundary County and four in Bonner County will be connected to the cooperative's lines within the next ten years.

At the present time the abundant timber stands in the Kootenai National Forest in Lincoln County, Montana, are being logged and cut by the J. Neils Lumber Company at Libby, Montana. The power requirements of this large lumber establishment are for the most part electric and are being furnished by means of a steam generating plant, wood fired, at the mill site in Libby

and by a hydroelectric generating station which is now being enlarged, located at the mouth of Lake Creek. Considerable agitation is being conducted by civic groups, labor unions and veterans' organizations in Troy to establish a large sawmill in that vicinity to process the timber which is logged in the western part of the county. These interests are endeavoring to have an allocation made of 20 million board feet annually on a sustained yield basis for processing by a mill to be located in Troy. These interests are confident that a mill of comparable size to that now operating in Libby will be established within the next five years and that the power requirements will increase from an initial 500 kilowatts to 1,000 kilowatts in ten years. The load estimates contained in Table III are based on that assumption. The location and approximate horsepower requirements of each permanently located sawmill which may be served from the cooperative's lines are noted on the attached maps.

Shingle Mills. A supply of cedar suitable for the manufacture of shingles is available in the area. At present there is one electrified shingle mill located north of Sandpoint and two near Priest River, all of which are being served by the Mountain States Power Company. The power requirements of the electric shingle mill adjacent to Sandpoint were analyzed as follows:

Large cutoff saw	40 hp
Power hoist	5 hp
Tool grinder	1/2 hp
Shingle machine	1-30 hp
	1- 3 hp

Operating records of the Mountain States Power Company indicate that the maximum demand of this mill was 35 kilowatts and the annual consumption was approximately 36,000 kilowatt hours.



It is anticipated that the cooperative will serve one shingle mill now operated in the Outlet Bay area on the west side of Priest Lake in Bonner County, one proposed shingle mill to be established in Boundary County, and a proposed shingle mill west of Yaak on the Yaak River in northern Lincoln County, Montana.

Wood Pole Manufacturing and Treating Plants. This section of Idaho and Montana produces most of the cedar, pine and tamarack poles produced in the Northwest. Sandpoint, Idaho is the headquarters for numerous large pole supply companies.

The present shortage in the production of poles has created a huge backlog which cannot be supplied by existing companies. At present the cooperative has on hand applications for power from two small pole treating plants, one located at Trout Creek and the other near the state line at Leonia. Each of the plants operates a peeling machine, requiring approximately 12 hp and a hoist requiring approximately 10 hp.

A third large pole manufacturing and treating plant which has four peeling machines is now being established west of Troy by Mr. E. E. Drury. This operator is most anxious to secure power from the cooperative's line and negotiations are underway toward that end. This operator has access to approximately 1 million poles per year on a sustained yield basis and has a five-year contract for the delivery of 200,000 poles per year. It is estimated that this plant will have a maximum demand of at least 50 kilowatts and an average annual consumption of approximately 100,000 kilowatt hours.

It is probable that additional pole treating plants will be established and served by the cooperative within the next ten years; however, only the three plants heretofore discussed are included in the load estimates.

Wood Products Manufacture. War necessitated research into the use of all by-products of lumber manufacturing has resulted in a high commercial value being placed on all waste lumber products. The manufacture of plywood, plastic, glue extender, molding powder and dust insecticides are a few of the many uses now being made of waste lumber products. Some of the larger lumber establishments have been utilizing sawdust waste for the manufacture of "Pres-to-logs" for a number of years. Considerable research is being carried on by Forest Products Laboratories into the methods by which waste wood products can be utilized. It is quite probable that the next decade will result in the establishment of a number of small plants throughout this area to utilize the huge supply of waste materials incident to the manufacture of lumber.

With the availability of abundant low cost power it is not improbable that lathe mills, box factories and other factories will be established in the area.

Mining. Mining played an important part in the early day economy of the area especially in the vicinity of Hope and Clark Fork. At the present time there are two producing mines operating in that area which produce lead and silver. The area is served by the Mountain States Power Company.

The Silver Crescent Mine, located in the northern part of Boundary County, is the only mine operating in that county at this time, with the possible exception of the Continental Mine which is approximately nine miles north of the Upper Priest Lake and seventeen miles west of the cooperative's lines in the Port Hill area. The Silver Crescent management has made application on two different occasions to the cooperative for electric service for approximately 60 kilowatts, but due to war-time restrictions service has

not been extended. It is anticipated that this mine will be served in the near future and possibly additional workings will be opened up within the next ten years. The Talache workings on the western shore of Pend Oreille Lake have been closed for a number of years. Minerals in paying quantities are known to exist in this area and in the area south of Clark Fork. It is probable that at least two mining developments in Bonner County will be served by the cooperative within the next ten years.

The area north of Troy, along the Yaak River, is dotted with numerous gold claims. Two of these claims, in the vicinity of Sylvanite, were worked prior to the war. It is expected that as soon as conditions permit, they will again operate, and it is probable that both will be served by the cooperative within the next five years. It is not unlikely that extensive development of the mineral resources in both Boundary County, Idaho and Lincoln County, Montana will be made within the next ten years as roads are improved and low cost power is made available.

Hatcheries. The production of poultry in Boundary County was definitely increasing until the present crisis in the poultry market. With the return to a normal peace time economy and the increasing demands occasioned by the growth of the Spokane area, it is anticipated that poultry raising will again become economically important in the area. Leading agriculturalists predict that within ten years there will be at least three hatcheries operating in the rural areas and that at least one poultry dressing plant will be established, all of which will be served from the cooperative's lines.

Potato Cellars. The production of certified seed potatoes in Boundary County has been increasing within the last two years. The upland soils are adapted to the raising of high grade potatoes which find a ready market in

central Washington. This market should expand rapidly with the completion by the Bureau of Reclamation of irrigation projects in the Ephrata, Moses Lake and Connell area of Washington. During the 1945 season only about 100 acres were planted to seed potatoes; however, 1946 intentions indicate that at least 500 acres will be planted and a considerable increase in this acreage is anticipated. There is only one potato cellar in Bonners Ferry which adequately handles present grading and storage requirements. With the anticipated increase in production, at least three additional potato cellars will be required and it is believed that they will be located in rural areas and be served by the cooperative's lines. The production of certified vegetable seed has expanded along with that of potato seed. Alfalfa, carrots, onions, turnips, beets and radish seed are grown successfully and provide a lucrative supplement to the cash income of the area. It is anticipated that a seed warehouse and conditioning plant will be established in the vicinity of Copeland, which community is now served by the cooperative.

Locker Plants. There are two locker plants located in Sandpoint, one in Bonners Ferry and one in Troy. It is probable that at least one additional locker plant will be located in Bonner County and one in each of the towns of Copeland, Port Hill and East Port in Boundary County. It is also anticipated that a locker plant will be established in Noxon in Sanders County, Montana.

Radio and Wireless Stations. Due to the fact that no major broadcasting stations are beamed toward this area the radio reception is very inadequate. The definite trend away from amplitude modulation to frequency modulation is expected to result in the installation of a broadcasting station in each of Bonner and Boundary Counties.

Considerable research into the sending of messages by wireless has been done by the Radio Corporation of America and recent releases by this company indicate that they have developed a system of radio towers to be located approximately 50 miles apart which will supplant present metallic circuits of the Western Union Telegraph Company. Due to the extensiveness of the area in which the cooperative operates it is quite likely that at least two such towers will be located within the area and will probably be served by the cooperative.

Airports. Due to the post war emphasis on private and commercial aviation it is probable that present emergency landing facilities of the Forest Service will be utilized for commercial flying and that small repair shop facilities, as well as boundary and landing lights, will be installed. One such field is located near the cooperative's lines in the Priest Lake area and another is located near the Forest Service ranger station west of Troy, Montana. Another private flying field is being planned near the Bull Lake resort area in the south end of Lincoln County, Montana, and will be served by the cooperative. It is quite probable that an additional airfield will be served in the vicinity of Trout Creek in Sanders County, Montana.

Boatbuilding. At the present time the cooperative serves a small boatbuilding establishment on Priest Lake. Another boatbuilding shop, located in Sandpoint, is contemplating moving its facilities to the vicinity of Garfield Bay on Pend Oreille Lake and it will be served at that point from the cooperative's lines. It is quite probable that within ten years' time, due to the anticipated increase in the number of summer cottages and communities along the lake shore, that at least one additional boatbuilding

shop will be established and served by the cooperative.

Fish processing. Until a few years ago whitefish were taken in commercially paying quantities from Pend Oreille Lake. During the last few years this activity has declined and at present a negligible quantity is being smoked by the meat packing plant in Sandpoint and marketed commercially.

Recently there has been quite a marked demand for whitefish throughout the Inland Empire and it is probable that with the return to peace time economy commercial quantities of whitefish will again be taken from the Lake and it is anticipated that a fish processing plant will be established within the next five years.

Railroad Water Pumping and Coaling Stations. The cooperative now serves a 25 horsepower water pump and a 15 horsepower compressor at the Trout Creek coaling station of the Northern Pacific railroad. These facilities have an average monthly consumption of approximately 8,000 kilowatt hours. A 25 horsepower gasoline engine is used to power the coaling facilities; however, it is anticipated that it will also be converted to electric power within the next five years, increasing the demands and consumptions at that point.

The cooperative has an application from the Northern Pacific for service to its water pump at Heron, Montana. Another application for 7.5 horsepower has been made by the Northern Pacific for service to an electric water pump motor at Ocallala.

It is probable that the Spokane International Railroad water tank near Addie, Idaho will be electrified and served by the cooperative within the next five years.

Railroad Communication Facilities. The three major railroads which operate in the area maintain railroad signal equipment requiring motor

generator sets to recharge batteries. The Northern Pacific railroad has made application for service to its motor generator converter at Granite, Idaho, which will require approximately 1 kilowatt demand and will consume approximately 5,000 kilowatt hours annually. Similar facilities will be served on the Great Northern railroad in Bonner County and at Leonia in Boundary County.

POSSIBLE ACQUISITIONS

Sometime ago there was a movement initiated in Sandpoint to acquire the distribution facilities of the Mountain States Power Company serving the town. This movement failed and was dormant during the war. There is at present a definite sentiment on the part of numerous leading citizens to revive the issue as soon as low cost Bonneville power is assured the area.

It is further predicted that the town of Priest River, which is served by the same company, may also vote to acquire the distribution facilities within the limits of the city, as soon as Bonneville power is assured.

In the event both movements are successful it is quite probable that it would not be economically feasible for the Mountain States Power Company to operate the balance of its system, in which event it would be favorably disposed to sell its rural lines and the distribution facilities which serve the towns of Hope, East Hope and Clark Fork to the cooperative.

Such an acquisition by the Northern Idaho Rural Electrical Rehabilitation Association, Incorporated, would place it in a position to extend service to rural areas in the eastern part of Bonner County which are not now receiving service from the Mountain States Power Company, and would allow the cooperative to integrate its Sanders County (Montana) section with that of Bonner County, which it proposes to serve from a substation in the vicinity of Sandpoint.

There has also been considerable discussion as to the cooperative acquiring the distribution facilities of the Montana Light and Power Company now serving Troy. Such an acquisition would make possible the extension of

service to many more farms in the Troy area, which will not be possible otherwise. Certain members of the Troy town council have expressed their dissatisfaction with the present utility and have requested the cooperative to investigate the possibility of such an acquisition. Inasmuch as this system is now owned and operated by the J. Neils Lumber Company merely in conjunction with its generating facilities, the acquisition of which was made to assure an adequate source of power for its lumbering operations in Libby, it is thought that the acquisition can very probably be consummated.

The load estimates for Lincoln County have been based on the cooperative serving the town of Troy.

There are numerous farms to the south and north of Libby which are at present not being served by the Mountain States Power Company and which cannot be reached from the cooperative's lines even though the town of Troy is served. The acquisition of the distribution facilities in the town of Libby by the cooperative would be highly desirable in order to make central station service available to approximately 100 farms and rural communities in the vicinity of Libby, Montana.

EXHIBIT "A"NORTHERN IDAHO RERA SURVEY, Sandpoint, Idaho
Appliances & Farm Equipment Saturation Data

Based on 1066 questionnaires sent to members--476 replies received, or 44.6%

Electric Appliances & Equipment	Now In Use		Anticipated Purchases	
	Units	%	Next 12 mos.	
			Units	%
Ranges	52	4.9	116	10.9
Refrigerators	445	41.8	381	35.7
Washing Machines	865	81.1	83	7.8
Vacuum Cleaners	215	20.6	65	6.1
Irons	985	92.4	18	1.7
Water Heaters	65	6.1	69	6.5
Hot Plates	659	61.8	54	5.04
Ironers	56	5.25	18	1.7
Clocks	313	29.4	25	2.3
Coffee Maker	255	23.9	20	1.9
Portable Heaters	98	9.2	81	7.6
Toasters	551	51.7	67	6.3
Sewing Machines	103	9.7	27	2.5
Food Mixers	163	15.3	116	10.9
Water Pumps	464	43.5	161	15.1
Radios	979	91.8	25	2.3
Waffle Irons	490	46.	69	6.5
Roasters	58	5.4	38	3.6

FARM EQUIPMENT

Based on 868 Farms and 347 (estimated) replies, or 40%

Water Heaters	37	4.3	23	2.6
Feed Cutters	10	1.15	43	5.5
Cream Separators	88	10.1	303	34.9
Welders	88	10.1	50	5.8
Cutt-off Saws	35	4.0	25	2.9
Hay Hoists	5	.6	30	3.5
Milking Machines	157	18.1	195	22.5
Ensilage Cutters	8	.9	20	2.3
Fanning Mills	32	3.74	5	.6
Drills	123	14.12	20	2.3
Chicken Brooders	190	21.9	48	5.5
Walk-in Refrigerators	0	0.00	33	3.75
Reach-in "	40	4.61	148	17.
Deep Freeze Units	3	.288	48	5.5
Feed Mixers	32	3.17	93	10.7
Grinding Machines	182	21.	150	17.3
Lathes-Metal	37	4.3	23	2.6
Feed Grinders	45	5.2	45	5.2
Elec. Fences	295	34.	174	20.1
Hay Driers	0	0.00	70	8.1
Bench Saws	23	2.6	17	2.0

NOTE: Unit Price and Dollar value of each item has been omitted.

TABLE I

TYPE OF CONSUMER	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div. Fac.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
Farm, Non-Farm & Comm.				700	900	1100	@.8 560	@1.0 900	@1.5 1650	@2400 1,680,000	@3600 3,240,000	@5400 5,940,000
Summer Cottages				400	650	850	@.2 80	@.3 195	@.4 340	@1000 400,000	@1500 975,000	@2000 1,750,000
Irrigation pumps (Aver. 7HP) 6KW. Diversity factor, 0-100= 1.42; 51-100 = 1.67; over 100 = 2.0				20	75	125	84	270	375	@6000 120,000	@6000 450,000	@6000 750,000
Hay drying & Feed grinding	4	2	2	16	60	100	32	120	200	@5000 80,000	@5000 300,000	@5000 500,000
Potato Cellars (Commercial)	4	2	2	1	2	3	2	4	6	@5000 5,000	@5000 10,000	@5000 15,000
Locker Plants (Commercial)	12	2	6	0	1	1	0	6	6		@12,000 12,000	@12,000 12,000
Airfields	5	2	3	0	1	1	0	3	3		@10,000 10,000	@10,000 10,000
Radio & Communication Towers	10	2	5	0	1	2	0	5	10		@60,000 60,000	@60,000 120,000
Sawmills (24,000 b.f. per day av.)	100	2	50	1	3	4	50	150	200	@150,000 150,000	@150,000 450,000	@150,000 600,000
Shingle mills	35	2	18	0	1	1	0	18	18		@36,000 36,000	@36,000 36,000

TABLE I (Continued)

TYPE OF CONSUMER	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div. Fac.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
Boatbuilding Shops	10	2	5	2	2	3	10	10	15	@20,000 40,000	@20,000 40,000	@20,000 60,000
Fish processing plant	12	2	6	0	1	1	0	6	6		@15,000 15,000	@15,000 15,000
Resort Hotels	20	2	10	1	2	3	10	20	30	@25,000 25,000	@25,000 50,000	@25,000 75,000
Mines (Lead & Silver)	30	2	15	0	1	2	0	15	30		@50,000 50,000	@50,000 100,000
Railroad Water Pumps	7	2	4	1	1	1	4	4	4	@20,000 20,000	@20,000 20,000	@20,000 20,000
R. R. Signal Converter Stations			1	2	2	2	2	2	2	@5,000 10,000	@5,000 10,000	@5,000 10,000
TOTALS							834	1728	2895	2,530,000 @22%	5,728,000 @20%	10,013,000 @18%
PLUS SYSTEM LOSSES										556,600	1,145,600	1,802,340
SYSTEM TOTALS							834	1728	2895	3,086,600	6,873,600	11,815,340

TABLE II

TYPE OF CONSUMER	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div. Fac.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
Farm, Non-Farm & Commercial				500	600	650	@.8 400	@1.0 600	@1.5 975	@2400 1,200,000	@3600 2,160,000	@5400 3,510,000
Irrigation Pumps (Aver. 7HP) 6KW. Diversity Factor, 0-50= 1.42; 51-100 = 1.67; over 100= 2.0				13	40	125	55	168	375	@6000 78,000	@6000 240,000	@6000 750,000
Hay drying & Feed grinding	4	2	2	10	32	100	20	64	200	@5000 50,000	@5000 160,000	@5000 500,000
Drainage Pumps	50	1.6	30	4	13	15	120	390	450	@4500 180,000	@4500 585,000	@4500 675,000
Hatcheries (Commercial)	10	2	5	1	2	3	5	10	15	@12,000 12,000	@12,000 24,000	@12,000 36,000
Poultry Processing (Commercial)	20	2	10	0	1	1	0	10	10		@24,000 24,000	@24,000 24,000
Grain Elevator & Feed Grinding (Com)	20	2	10	1	2	2	10	20	20	@15,000 15,000	@15,000 30,000	@15,000 30,000
Potato Cellers (Commercial)	4	2	2	1	2	3	2	4	6	@5,000 5,000	@5,000 10,000	@5,000 15,000
Locker Plants (Commercial)	12	2	6	1	2	3	6	12	18	@12,000 12,000	@12,000 24,000	@12,000 36,000
Flour Mills	25	2	13	0	1	1	0	13	13		@24,000 24,000	@24,000 24,000
Seed Warehouse & Conditioning Plt.	10	2	5	0	1	1	0	5	5		@17,000 17,000	@17,000 17,000
Radio Stations & Comm. Towers	10	2	5	0	1	2	0	5	10		@60,000 60,000	@60,000 120,000
Sawmills	100	2	50	1	3	3	50	150	150	@150,000 150,000	@150,000 450,000	@150,000 450,000
Shingle Mills	35	2	18	0	1	1	0	18	18		@36,000 36,000	@36,000 36,000
Railroad Converter Stations			1	1	1	1	1	1	1	@5,000 5,000	@5,000 5,000	@5,000 5,000

TABLE II (Continued)

BOUNDARY COUNTY (2 of 2)

	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
		Fac.										
Railroad Water Pump	7	2	4	0	1	1	0	4	4		@20,000 20,000	@20,000 20,000
Mines	60	2	30	0	1	2	0	30	40		@100,000 100,000	@100,000 200,000
TOTALS							669	1504	2330	1,707,000 @22%	3,969,000 @20%	6,448,000 @18%
PLUS SYSTEM LOSSES										375,540	793,800	1,160,000
SYSTEM TOTALS							669	1504	2330	2,082,540	4,762,800	7,608,640

LINCOLN COUNTY

TABLE III

TYPE OF CONSUMER	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div. Fac.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
Farm, Non-Farm & Commercial				100	150	200	@.8 80	@1.0 150	@1.5 300	@2400 240,000	@3600 540,000	@5400 1,080,000
Summer Cottages				30	50	100	@.2 6	@.3 15	@.4 40	@1000 30,000	@1500 75,000	@2000 200,000
Irrigation pumps (aver. 7HP) 6KW. Diversity Factor 0-50=1.42; 51-100= 1.67; over 100=2.0				7	15	35	29	63	147	@6,000 42,000	@6,000 90,000	@6,000 210,000
Hay drying & feed grinding	4	2	2	6	12	28	12	24	56	@5,000 30,000	@5,000 60,000	@5,000 140,000
Airfields	5	2	3	1	2	2	3	6	6	@10,000 10,000	@10,000 20,000	@10,000 20,000
Radio Stations	10	2	5	1	1	1	5	5	5	@60,000 60,000	@60,000 60,000	@60,000 60,000
Sawmills (100,000 b.f. per day)	500	1.6	300	0	1	1	0	300	600		@700,000 700,000	@1,400,000 1,400,000
Shingle mills	35	2	18	0	1	1	0	18	18		@36,000 36,000	@36,000 36,000
Pole treating plant (small)	20	2	10	1	1	1	10	10	10	@35,000 35,000	@35,000 35,000	@35,000 35,000
Pole treating plant (large)	50	2	25	1	1	1	25	25	25	@100,000 100,000	@100,000 100,000	@100,000 100,000
Gold Mines	30	2	15	0	1	2	0	15	30		@50,000 50,000	@50,000 50,000
Resort Hotel	20	2	10	1	1	1	10	10	10	@25,000 25,000	@25,000 25,000	@25,000 25,000
Acquisitions (Troy includes Lumber Company repair shops, Railroad coal & water station & Locker Plant							300	375	450			
Wood Products Manufacture							0	150	300			
							480	1166	1997	1,572,000 @22%	3,691,000 @20%	6,406,000 @18%
										345,840	738,200	1,153,080
							480	1166	1997	1,917,840	4,429,200	7,559,080

SANDERS COUNTY

TABLE IV

TYPE OF CONSUMER	KW DEMANDS			NO. OF CONSUMERS			MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	Max.	Div. Fac.	Aver.	2 yrs	5 yrs	10 yrs	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
Farms, Non-Farms & Commercial				220	270	300	@.8 176	@1.0 270	@1.5 450	@2400 528,000	@3600 972,000	@5400 1,620,000
Irrigation Pumps (Aver. 7HP) 6KW Diversity Factor 0-5=1.42; 51-100=1.67; over 100=2.0				10	25	50	42	105	210	@6,000 60,000	@6,000 150,000	@6,000 300,000
Hay drying and feed grinding	4	2	2	8	20	40	16	40	80	@5,000 40,000	@5,000 100,000	@5,000 200,000
Locker Plants (Commercial)	12	2	6	0	1	1	0	6	6		@12,000 12,000	@12,000 12,000
Airfields	5	2	3	0	1	1	0	3	3		@10,000 10,000	@10,000 10,000
Pole treating plant	20	2	10	1	1	1	10	10	10	@35,000 35,000	@35,000 35,000	@35,000 35,000
Railroad Water & Coaling Station	40	2	20	2	2	2	40	40	40	@140,000 280,000	@140,000 280,000	@140,000 280,000
				TOTALS			284	474	799	943,000	1,559,000	2,457,000
				PLUS SYSTEM LOSSES						@22% 217,460	@20% 311,800	@18% 442,260
				SYSTEM TOTALS			284	474	799	1,160,460	1,870,800	2,899,260

TABLE V

SUMMARY

COUNTY	MAXIMUM KW DEMAND			ANNUAL KWH CONSUMPTION		
	2 yrs	5 yrs	10 yrs	2 years	5 years	10 years
BONNER COUNTY, IDAHO	834	1728	2895	3,086,600	6,873,600	11,815,340
BOUNDARY COUNTY, IDAHO	669	1504	2330	2,082,540	4,762,800	7,608,640
LINCOLN COUNTY, MONTANA	480	1166	1997	1,917,840	4,429,200	7,559,080
SANDERS COUNTY, MONTANA	284	474	799	1,160,460	1,870,800	2,899,260
TOTALS	<u>2267</u>	<u>4872</u>	<u>8021</u>	<u>8,247,440</u>	<u>17,936,400</u>	<u>29,882,320</u>

